



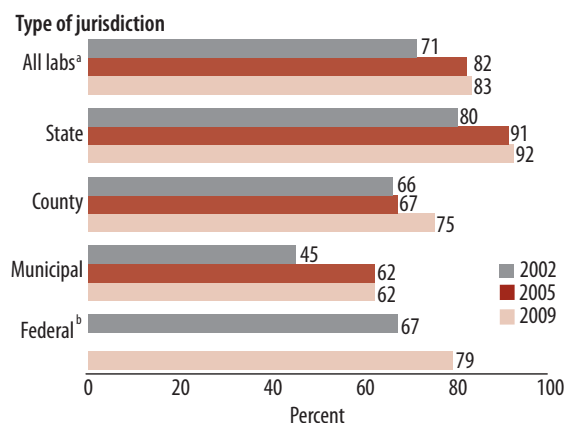
Census of Publicly Funded Forensic Crime Laboratories, 2009

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In 2009, the nation's 411 publicly funded crime laboratories received an estimated 4.1 million requests for forensic services. Of these, 8 out of 10 were for the screening or DNA analysis of biological evidence (i.e., forensic biology) (34%), controlled substance analysis (33%), or toxicology (15%). During the same year, 83% of publicly funded crime labs were accredited by a professional forensic science organization compared to 71% in 2002 (figure 1). Between 2002 and 2009, the overall accreditation rate increased across state (80% to 92%), county (66% to 75%), municipal (45% to 62%), and federal (67% to 79%) labs.

This report summarizes data from the Bureau of Justice Statistics' (BJS) 2009 Census of Publicly Funded Forensic Crime Laboratories (CPFFCL) and provides a comparative analysis with findings from the censuses conducted in 2002 and 2005. The CPFFCL offers a comprehensive look at crime lab personnel, budgets, and other administrative information (including backlogs in requests for forensic services) across the nation. The census also provides information on accreditations, proficiency tests, and other quality assurances within publicly operated labs.

FIGURE 1
Percent of publicly funded forensic crime labs accredited by a professional forensic science organization, by type of jurisdiction, 2002, 2005, and 2009



Note: Figure includes organizations such as the American Society of Crime Laboratory Directors/Laboratory Accreditation Board and Forensic Quality Services. Data on accreditation were reported by 98% of the 397 labs responding to the 2009 census, 83% of the 351 labs responding to the 2005 census, and 98% of the 306 labs responding to the 2002 census. Percentages are based on reported data.

^aPercentage for 2005 includes federal labs, not shown separately.

^bPercentage not presented for federal labs in 2005 due to low response rate.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2002, 2005, and 2009.

HIGHLIGHTS

- During 2009, publicly funded crime labs began and ended the year with a total backlog of more than one million requests for forensic services.
- While forensic biology accounted for about a third of all requests received during 2009, about three-quarters of the total backlog that year was for these types of requests.
- DNA samples collected from convicted offenders and arrestees for a database of DNA profiles accounted for the majority of all forensic biology requests received in 2009.
- About 3 out of 10 publicly funded crime labs outsourced some forensic work to private labs or other public facilities in 2009.
- Publicly funded crime labs employed an estimated 13,100 full-time personnel in 2009—an increase from about 11,000 in 2002.
- The estimated budget for all publicly funded crime labs in 2009 was about \$1.6 billion compared to the \$1.0 billion budget for labs in 2002.

Most crime labs provided evidentiary analysis in multiple forensic disciplines

Publicly funded crime labs provided an average of five different functions in 2009 (not in table). Agencies that had a larger number of full-time employees generally provided a wider range of forensic functions. On average, labs with 100 or more employees performed seven different functions, while smaller labs having fewer than 10 employees were more specialized and performed three functions. In 2009, the most common service (82%) performed by crime labs was the analysis of drugs or other illegal substances (table 1).

The majority (60%) of crime labs reported analyzing latent (or hidden) fingerprints recovered from crime scenes. The CPFFCL asked respondents to report on their use of the FBI's Integrated Automated Fingerprint Identification System (IAFIS), a national database that provides automated fingerprint search capabilities. In 2009, IAFIS was used by 78% of labs that performed latent fingerprint comparisons (not in table).

Fifty-five percent of crime labs examined pattern evidence resulting from the use of firearms or tools in 2009. Among labs that performed this function, 78% reported using the Bureau of Alcohol, Tobacco, Firearms and Explosives' National Integrated Ballistic Information Network (NIBIN). This

database allows examiners to upload images from casings and bullets recovered during an investigation and compare them to evidence from other crimes.

TABLE 1
Functions performed by publicly funded forensic crime labs, by type of jurisdiction, 2009

Forensic function	All labs	State	County	Municipal	Federal
Controlled substances	82%	86%	85%	75%	59%
Latent prints	60	54	63	78	65
Forensic biology ^a	59	64	66	49	26
Firearms/toolmarks	55	55	63	62	21
Crime scene	52	44	62	71	44
Trace evidence	50	50	55	44	50
Impressions	44	44	53	43	24
Toxicology	42	50	43	35	9
Digital evidence	19	10	21	32	44
Questioned documents	16	13	13	24	29
Other functions ^b	13	10	14	12	24
Number of reporting labs	397	211	88	63	35

Note: Data on forensic functions were reported by 100% of labs that responded to the census. Detail sums to more than total because some labs reported performing more than one function. See *Methodology* for definitions of forensic functions.

^aIncludes biology screening and DNA analysis.

^bIncludes tasks such as polygraph, bloodstain pattern analysis, environmental forensics, and forensic pathology.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2009.

The Census of Publicly Funded Crime Laboratories examines services and resources devoted to forensic investigations in the U.S.

Forensic crime labs are a critical component of criminal investigations and the administration of justice. Publicly funded forensic crime labs examine and report on physical evidence in criminal matters for state, county, municipal, and federal jurisdictions, and also provide court testimony regarding that evidence. They receive requests for forensic services from a variety of agencies, including the police, medical examiners, prosecutors, and correctional facilities.

In 1998, the Bureau of Justice Statistics (BJS) conducted its first national survey of crime labs, focusing solely on agencies that performed DNA testing. The National Study of DNA Laboratories was repeated in 2001 and surveyed approximately 120 public DNA labs. As the need for statistics on other forensic services grew, BJS expanded the data collection to include all areas of forensic analysis being performed at publicly operated crime labs.

The first Census of Publicly Funded Forensic Crime Laboratories (CPFFCL) was conducted in 2003 to capture data on the 2002 workload and operations of the 351 publicly funded crime labs operating that year. A follow-up census was fielded three years later to address additional forensic science issues and examine changes since 2002. In

2010, BJS conducted a third census on the workload and operations of publicly funded crime labs in 2009. A total of 397 (or 97%) of all labs responded to the 2009 census, including at least one from every state (table 2).

About half (51%) of labs in 2009 were units within a multiple laboratory system (not in table). State labs, which can serve an entire state or regional area, accounted for 89% of all publicly funded crime labs that operated within a multiple lab system. The 2009 CPFFCL was administered to each lab within a multiple lab system.

TABLE 2
Publicly funded forensic crime laboratories, by type of jurisdiction, 2009

Type of jurisdiction	All labs	Labs responding to BJS census	Response rate
All labs	411	397	97%
State	217	211	97%
County	90	88	98
Municipal	66	63	95
Federal	38	35	92

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2009.

About half (52%) of the nation's crime labs engaged in crime scene response activities, including the documentation and collection of physical evidence. County (62%) and municipal (71%) labs were more likely than state (44%) and federal (44%) labs to be directly involved in crime scene investigations in 2009. Among labs involved in crime scene investigations, 96% performed evidence collection and 56% conducted crime scene reconstruction (table 3).

Examinations of printed or written documents (16%) and digital evidence (19%) were performed by the smallest percentage of publicly funded crime labs in 2009. Federal labs (44%) were more likely than state (10%), county (21%), or municipal (32%) labs to report analyzing digital evidence.

Forensic biology services, including biology screening and DNA analysis, were provided by about 6 out of 10 (59%) publicly funded crime labs in 2009. This includes samples that were collected during a criminal investigation, either at the crime scene or from a person of interest, and samples that were collected for inclusion in a local, state, or national DNA database. All 50 states, the District of Columbia, and the federal government require convicted offenders, and in some jurisdictions those arrested for certain crimes, to provide DNA samples to be processed for a database. Among the labs that handled forensic biology requests in 2009, 61% used robotic instruments and 17% used expert system software. These advanced technologies reduced the time to process samples by minimizing human intervention.

State, county, municipal, and federal labs enter DNA profiles from offenders, arrestees, and casework into the FBI's Combined DNA Index System (CODIS). CODIS software allows crime labs to electronically compare biological evidence collected from criminal investigations to DNA profiles stored in a database for the purpose of linking serial crimes together and identifying suspects. Eighty-one percent of crime labs that performed forensic biology services in 2009 reported using CODIS.

Crime labs received an estimated 4 million requests for forensic services in 2009

Crime laboratories receive millions of pieces of evidence from criminal investigations each year. A criminal case may generate more than one type of request to process or analyze evidence. For example, a laboratory may receive fiber evidence and biological evidence from the same case, which require analysis by different sections of the lab. The ability of a lab to handle its forensic workload depends on numerous factors, including the complexity of the procedures and the availability of analysts and other resources.

BJS asked labs to provide the total number of requests received and completed within their facility for each forensic service they performed during 2009. To examine the capacity of labs to turn around all requests within a 30-day period, BJS also asked respondents to supply information on the number of requests that had been submitted to the lab but had not yet been examined and reported to the submitting agency. The

TABLE 3
Examinations and tasks performed by publicly funded forensic crime labs, by type of forensic function and jurisdiction served, 2009

Forensic function	All labs	State	County	Municipal	Federal
Latent prints	100%	100%	100%	100%	100%
Print development	95	96	95	92	100
Comparisons	89	94	87	82	82
Crime scene	100%	100%	100%	100%	100%
Evidence collection	96	95	96	100	94
Reconstruction	56	44	70	75	31
Trace evidence	100%	100%	100%	100%	100%
Gunshot residue	37	31	54	43	13
Hair examination	49	48	54	52	38
Fiber examination	59	57	56	63	75
Fire debris analysis	71	78	76	59	25
Explosives analysis	31	30	28	41	38
Paint analysis	58	62	58	48	50
Chemical unknown	61	56	64	56	94
Other	40	42	41	22	56
Impressions	100%	100%	100%	100%	100%
Footwear	98	99	98	96	86
Tire tread	90	94	89	79	86
Toxicology	100%	100%	100%	100%	100%
Antemortem blood alcohol content (BAC)	95	97	92	95	67
Antemortem drugs	60	61	76	29	67
Postmortem	40	42	54	0	100

Note: Data on forensic functions were reported by 100% of labs that responded to the census. Detail sums to more than total because some labs reported performing more than one type of examination or task. Information on specific examinations or tasks only collected for certain types of forensic functions.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2009.

CPFFCL defined a pending request as backlogged if it was in the lab and remained unreported for 30 days or longer. The 2009 census asked labs to report both the overall number of pending requests and the number of backlogged requests at yearend 2008 and 2009. Nearly 9 out of 10 forensic requests that were pending at the end of 2008 had been in the lab for 30 days or more and were classified as backlogged (not in table).

The nation's 411 publicly funded crime labs began 2009 with an estimated backlog of 1.2 million requests for forensic services (table 4). These labs received an estimated 4.1 million new requests for forensic services during 2009 (table 5). The screening or DNA analysis of biological evidence (i.e., forensic biology) (34%), analysis of controlled substance (33%), and toxicology (15%) accounted for about 8 in 10 of all requests received that year. For various reasons (e.g., the case being solved or closed), some requests were ultimately canceled by the submitting agency before being completed by the lab because the services were no longer needed. The 411 publicly funded crime labs completed about 3.9 million requests during 2009 and had a backlog of about 1.2 million requests at yearend.

While forensic biology accounted for about a third of the 4.1 million requests received during 2009, about three-quarters of the total backlog that year was for these types of requests. Due to an increase in the collection of DNA samples as mandated by federal legislation, about 60% of the estimated 887,000 requests for forensic biology services that were backlogged at the beginning of 2009 were reported by the FBI Laboratory Division.

With more than 500 employees, the FBI Lab was the largest publicly funded crime laboratory in the United States in 2009. This laboratory provided a full range of forensic services, including the analysis of samples received from federal, state, county, and municipal casework and persons convicted of a federal crime, arrested under federal authority, or detained and who are not United States citizens.

Among the nation's publicly funded crime labs, DNA samples from convicted offenders and arrestees accounted for the majority (75%) of all forensic biology requests in 2009. In fact, these samples were about a quarter of all requests for service in 2009. Publicly funded crime labs received and completed an estimated 1.0 million samples taken from convicted offenders and arrestees during 2009. These labs had about 522,000 convicted offender and arrestee samples backlogged at the start of 2009 and 498,000 backlogged at yearend.

As a part of the 2009 CPFFCL, labs were asked about forensic biology evidence submitted from sexual assaults. However, not all labs that handled these types of requests were able to report how many were received, completed, or backlogged. In this census, 122 labs reported receiving an estimated 55,000 new requests to process sexual assault evidence during 2009 and completed about 57,000 of these types of requests that year (not in table). The number of completed requests in 2009 exceeded the number received because some of the completed requests were for evidence collected before 2009.

TABLE 4
Nationally estimated number of requests for services backlogged in publicly funded forensic crime labs, by type of request, yearend 2008–09

Type of request	Yearend 2008		Yearend 2009	
	Number	Percent	Number	Percent
All requests	1,184,500	100%	1,193,800	100%
Forensic biology*	887,400	75%	905,200	76%
Convicted offender/arrestee samples	522,100	44	498,500	42
Casework	365,200	31	406,700	34
Controlled substances	142,100	12%	137,700	12%
Latent prints	53,100	4%	49,500	4%
Firearms/toolmarks	46,700	4%	48,700	4%
Toxicology	30,400	3%	28,600	2%
Trace evidence	14,700	1%	13,200	1%
Impressions	5,500	--%	5,700	--%
Questioned documents	2,100	--%	2,400	--%
Digital evidence	1,300	--%	1,300	--%
Other forensic requests	1,100	--%	1,500	--%

Note: National estimates based on imputations for labs that did not report backlog data. See *Methodology* for imputation procedures. A request is classified as backlogged if it has been submitted to a crime lab, but has not yet been examined and reported to the submitting agency within 30 days. Totals exclude requests outsourced to other labs. Numbers are rounded to the nearest hundred. Appendix table 1 provides backlog totals based on labs that reported this information in the census.

*Includes requests for DNA analysis and biology screening.

--Less than 0.5%.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2009.

TABLE 5
Nationally estimated number of requests for services received and completed by publicly funded forensic crime labs, by type of request, 2009

Type of request	Received		Completed	
	Number	Percent	Number	Percent
All requests	4,120,000	100%	3,905,000	100%
Forensic biology*	1,389,000	34%	1,312,000	34%
Convicted offender/arrestee samples	1,045,000	25	1,017,000	26
Casework	343,000	8	295,000	8
Controlled substances	1,356,000	33%	1,262,000	32%
Toxicology	613,000	15%	591,000	15%
Latent prints	271,000	7%	275,000	7%
Crime scene	190,000	5%	190,000	5%
Firearms/toolmarks	147,000	4%	131,000	3%
Trace evidence	56,000	1%	46,000	1%
Digital evidence	31,000	1%	31,000	1%
Questioned documents	13,000	--%	12,000	--%
Impressions	11,000	--%	10,000	--%
Other forensic requests	42,000	1%	42,000	1%

Note: National estimates are based on imputations for labs that did not report data on requests received and completed. See *Methodology* for imputation procedures. Totals exclude requests outsourced to other labs. The number of requests completed in 2009 exceeded the number of requests received that year for certain disciplines because the completed requests included ones received in 2008. Numbers are rounded to the nearest thousand. Appendix table 2 provides totals for requests received and completed based on labs that reported this information in the census.

*Includes requests for DNA analysis and biology screening.

--Less than 0.5%.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2009.

Among the 123 labs that provided the number of pending requests to process sexual assault evidence at yearend 2008 and 2009, an estimated 28,000 requests were pending at the end of 2009—a decrease from the approximately 34,000 pending requests in these labs at yearend 2008. Of these labs, 116 reported that 19,000 requests to process sexual assault evidence were backlogged (i.e., pending requests not completed for 30 days or longer) at yearend 2009, compared to about 21,000 at the end of 2008.

To study changes in the backlog for individual forensic services during a given year, comparisons were made among the 363 labs that provided this information for both yearend 2008 and 2009 (table 6). While the overall number of backlogged requests remained relatively unchanged during this 1-year period, changes in the backlog for individual types of requests varied depending on the service. During 2009, the backlog of requests for forensic services declined for latent prints, toxicology, and trace evidence. Among the 217 labs that reported backlog data for forensic biology requests, the total backlog between yearend 2008 and 2009 decreased for offender and arrestee samples and increased for casework. The overall backlog also increased for firearm or toolmark examinations.

More than half of all requests for forensic services were sent to state labs

In 2009, more than half (2.4 million) of the estimated 4.1 million requests for forensic services received by publicly funded crime labs nationwide were submitted to state laboratories (table 7). Labs serving county and municipal jurisdictions received an estimated 1.5 million forensic requests in 2009. Federal labs received the fewest requests that year (284,000).

The composition of the forensic work handled by the nation's crime labs during 2009 varied among those serving federal, state, county, and municipal jurisdictions. For instance, toxicology requests accounted for about 5% of the workload for municipal and federal labs, while toxicology made up about 26% of the requests received by county labs and 15% of requests to state labs. Forensic biology comprised 61% of requests made to federal labs and 46% of requests to state labs, compared to less than 10% of requests to county and municipal labs. Crime scene investigations accounted for 16% of requests made to municipal labs, compared to 10% of requests to county labs and less than 1% of requests to state and federal labs.

TABLE 6
Percent change in the number of backlogged requests among publicly funded forensic crime labs, by type of request, yearend 2008–09

Type of request	Number of labs reporting	Yearend 2008	Yearend 2009	Percent change in backlog
All requests	363	1,129,600	1,144,900	1%
Forensic biology*	217	872,300	893,300	2%
Convicted offender/arrestee samples	44	517,000	494,400	-4
Casework	216	355,300	398,900	12
Controlled substances	293	120,000	118,600	-1%
Latent prints	214	48,400	44,700	-8%
Firearms/toolmarks	192	41,700	43,400	4%
Toxicology	150	25,600	23,800	-7%
Trace evidence	178	13,200	11,700	-11%
Impressions	135	5,300	5,600	5%
Digital evidence	65	1,200	1,200	-1%
Questioned documents	55	800	1,000	36%
Other forensic requests	34	1,100	1,500	35%

Note: Numbers are based on labs that provided backlog data for both yearend 2008 and 2009 in the 2009 census. A request was classified as backlogged if it had been submitted to a crime lab, but had not yet been examined and reported to the submitting agency within 30 days. Totals exclude requests outsourced to other labs. Numbers are rounded to the nearest hundred.

*Includes requests for DNA analysis and biology screening.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2009.

TABLE 7
Types of requests for services received by publicly funded forensic crime labs, by type of jurisdiction, 2009

Type of request	State	County	Municipal	Federal
Total	100%	100%	100%	100%
Forensic biology*	46.3	8.8	8.0	60.9
Controlled substances	28.9	36.5	45.9	26.5
Toxicology	15.0	26.0	5.3	3.9
Latent prints	4.7	10.9	9.5	3.2
Firearms/toolmarks	2.7	5.5	5.8	0.5
Trace evidence	1.3	1.1	1.8	1.1
Crime scene	0.3	9.7	15.7	0.1
Impressions	0.2	0.6	0.2	0.1
Digital evidence	0.2	0.8	3.0	0.4
Questioned documents	0.1	0.1	0.2	3.0
Other forensic requests	0.5	--	4.6	0.3
All requests received	2,360,000	822,000	654,000	284,000

Note: Numbers are based on imputations for labs that did not report data on requests received. See *Methodology* for imputation procedures.

-- Less than 0.05%.

*Includes requests for DNA analysis and biology screening.

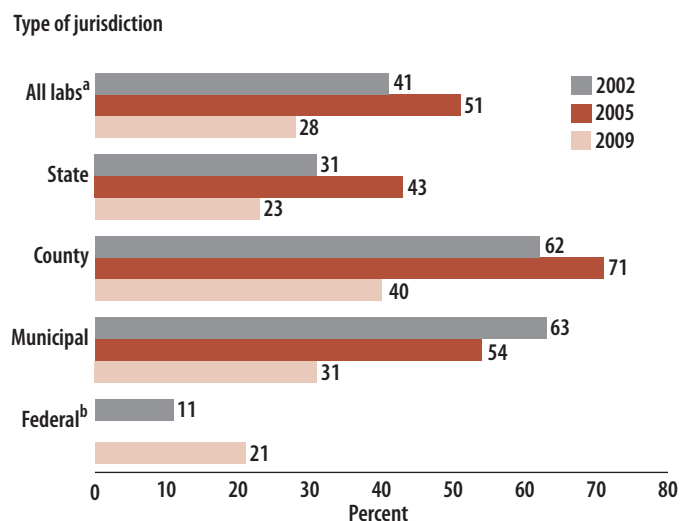
Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2009.

About 3 out of 10 labs outsourced some forensic work in 2009

To address the demands for forensic services, some publicly funded crime labs outsourced work to private labs or other public facilities (e.g., evidence originally sent to a state lab outsourced to a federal lab for analysis). Twenty-eight percent of publicly funded crime labs reported outsourcing one or more types of forensic services in 2009 (figure 2). This was a decline from the percentage of labs that outsourced forensic work in 2002 (41%) and 2005 (51%).

Forensic biology accounted for about 8 in 10 (83%) of the more than 187,000 requests that publicly funded crime labs reported outsourcing during 2009 (not in table). Toxicology requests accounted for an additional 11% of requests outsourced in 2009.

FIGURE 2
Percent of publicly funded forensic crime labs outsourcing requests for services, by type of jurisdiction, 2002, 2005, and 2009



Note: Data on outsourcing were reported by 98% of the 397 labs responding to the 2009 census, 76% of the 351 labs responding to the 2005 census, and 88% of the 306 labs responding to the 2002 census. Percentages are based on reported data.

^aPercentage for 2005 includes federal labs, not shown separately.

^bPercentage not presented for federal labs in 2005 due to low response rate.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2002, 2005, and 2009.

Larger publicly funded crime labs were more likely to outsource requests for forensic services in 2009. Sixty-two percent of labs having 100 or more employees reported some type of outsourcing, compared to 12% of labs employing fewer than 10 people (table 8). A larger percentage of labs serving county (40%) and municipal (31%) jurisdictions compared to those serving state (23%) and federal (21%) jurisdictions reported outsourcing requests for forensic services in 2009.

Fifteen percent of publicly funded crime labs reported receiving some requests for forensic services from other labs rather than directly from law enforcement or other criminal justice agencies during 2009. Federal labs (35%) were more likely than state (12%), county (17%), and municipal (14%) labs to receive requests that were sent out for analysis by another laboratory that year.

TABLE 8
Percent of publicly funded forensic crime labs that outsourced requests for services or received requests from other labs, by type of jurisdiction and staff size, 2009

	Outsourced requests to private or other public labs	Received requests from other labs
All labs	28%	15%
Type of jurisdiction		
State	23%	12%
County	40	17
Municipal	31	14
Federal	21	35
Number of full-time employees		
Fewer than 10	12%	11%
10 to 24	21	12
25 to 49	34	18
50 to 99	59	33
100 or more	62	19
Number of requests	187,000	16,700
Number of reporting labs	389	384

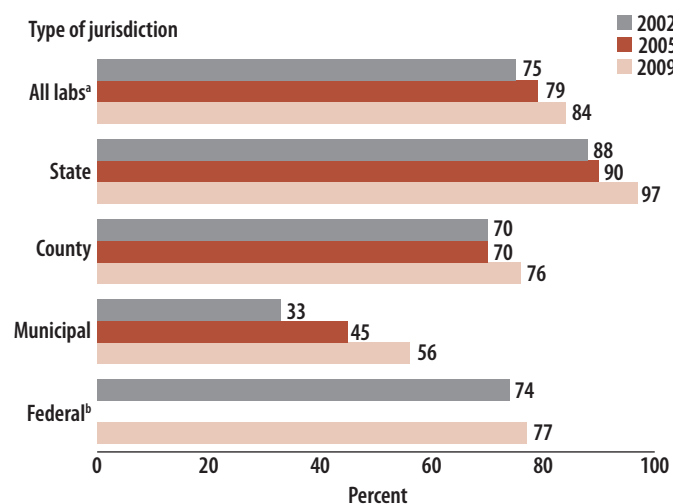
Note: Among the 397 labs that responded to the census, data on outsourcing were reported by 98% of labs and data on requests received from other labs were reported by 98% of labs. Employee data were reported by 99% of labs. In the 2009 census, 105 labs reported outsourcing about 187,000 requests, and 59 labs reported receiving 16,700 requests from other labs.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2009.

8 in 10 crime labs had a laboratory information management system (LIMS)

A laboratory information management system (LIMS) is used to manage tasks and pieces of evidence received from criminal investigations. Overall, the percentage of publicly funded crime labs that had these electronic systems or software programs increased from 75% in 2002 to 84% in 2009 (figure 3). In 2009, labs serving state jurisdictions (97%) were more likely than those serving federal (77%), county (76%), or municipal (56%) jurisdictions to have a LIMS.

FIGURE 3
Percent of publicly funded forensic crime labs with a laboratory information management system (LIMS), by type of jurisdiction, 2002, 2005, and 2009



Note: Data on LIMS were reported by 99% of the 397 labs responding to the 2009 census, 86% of the 351 labs responding to the 2005 census, and 89% of the 306 labs responding to the 2002 census. Percentages are based on reported data.

^aPercentage for 2005 includes federal labs, not shown separately.

^bPercentage not presented for federal labs in 2005 due to low response rate.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2002, 2005, and 2009.

Labs used LIMS for a variety of functions. The vast majority (89%) of publicly funded crime labs with a LIMS used it to track individual items of forensic evidence being processed, while 31% reported their LIMS tracked the progress of criminal cases through the justice system so they could prioritize their workload based on the needs of their customers (table 9). Eighty-four percent of labs with a LIMS reported that the system was used to calculate the turnaround time it took to analyze the evidence.

Most publicly funded crime labs were accredited in 2009

In 2009, about 8 in 10 publicly funded crime labs (83%) were professionally accredited (table 10). Most of these labs received accreditation through the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB). State labs (92%) were the most likely to be accredited, while municipal labs (62%) were the least likely.

TABLE 9
Functions performed by laboratory information management systems (LIMS) within publicly funded forensic crime labs, 2009

LIMS function	Percent of labs with function
Tracking by—	
Item	89%
Request	90
Law enforcement case number	95
Lab case number	97
Calculating turnaround time	84%
Tracking criminal case status	31%
Interfacing with lab instrumentation	24%
Monitoring backlog	88%
Chain of custody	90%
Generating reports	92%

Note: Percentages are based on labs that reported having a LIMS.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2009.

TABLE 10
Percent of publicly funded forensic crime labs accredited by a professional forensic science organization, by type of jurisdiction and accreditation, 2009

Type of jurisdiction	Number of reporting labs	Any accreditation ^a	ASCLD/LAB, Legacy ^b	ASCLD/LAB, International ^b	FQS-International ^c	Other ^d
All labs	390	83%	55%	19%	8%	9%
State	210	92%	65%	21%	11%	5%
County	85	75	54	17	1	10
Municipal	61	62	46	8	12	8
Federal	34	79	15	35	3	30

Note: Data on lab accreditation were reported by 98% of the 397 labs responding to the census.

^aDetail does not sum to total because a lab could be accredited by more than one organization.

^bAmerican Society of Crime Laboratory Directors/Laboratory Accreditation Board.

^cForensic Quality Services.

^dIncludes state programs and other accreditations, such as the American Association for Laboratory Accreditation (A2LA).

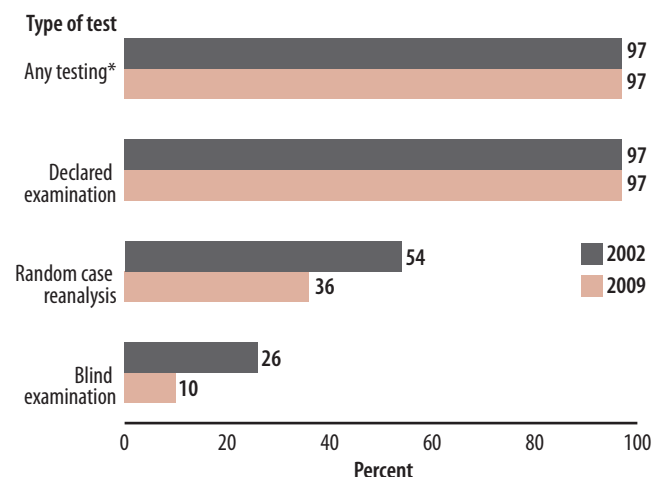
Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2009.

In 2009, 60% of publicly funded crime labs employed at least one forensic examiner who was externally certified by a certification body, such as the American Board of Criminalistics, International Association for Identification, or Forensic Toxicologist Certification Board (not in table). Seventy-two percent of labs had written standards for the performance expectations for their examiners in 2009.

In 2002 and 2009, the vast majority (97%) of publicly funded crime labs performed proficiency testing, which ensures the accuracy and reliability of forensic examinations (figure 4). Of labs that performed proficiency testing in 2009, 97% used declared tests (i.e., an examiner knew the sample he or she was analyzing was a test sample), and 36% used random case reanalysis (i.e., an examiner's work was randomly selected for reanalysis by another examiner). Ten percent performed blind tests (i.e., the examiner was not aware of being tested).

Seven percent of publicly funded crime labs devoted staff time, supplies, or other resources to forensic science research in 2009, including experimentation aimed at the discovery

FIGURE 4
Percent of publicly funded forensic crime labs that conducted proficiency testing, by type of test, 2002 and 2009



Note: Data on proficiency tests were reported by 98% of the 397 labs responding to the 2009 census and 90% of the 306 labs responding to the 2002 census. In the 2005 census, data were not collected on proficiency tests. Percentages are based on reported data.

*Detail does not sum to total because a lab could conduct more than one type of proficiency test.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2002 and 2009.

and interpretation of facts, the revision of accepted theories, and practical application of such new or revised theories or technologies (table 11). A larger percentage of federal labs than state, county, and municipal labs had resources devoted to research. Labs with 50 or more employees were more likely than smaller labs to have dedicated resources to research.

The nation's crime labs had about 13,100 full-time employees in 2009

Publicly funded crime labs in the United States ranged in staff size from one employee to more than 500 in 2009. The mean number of full-time lab employees was 32, and the median was 17 staff per lab (table 12).

TABLE 11
Percent of publicly funded forensic crime labs with resources dedicated to research, by type of jurisdiction and staff size, 2002 and 2009

	2002	2009
All labs	12%	7%
Type of jurisdiction		
State	8%	6%
County	11	5
Municipal	10	2
Federal	53	29
Number of full-time employees		
Fewer than 10	8%	2%
10 to 24	6	4
25 to 49	13	2
50 to 99	32	20
100 or more	21	43

Note: Data on research were reported by 98% of 397 labs responding to the 2009 census and 89% of the 306 labs responding to the 2002 census. Employee data were reported by 99% of the labs responding to the 2009 census and 89% of the labs responding to the 2002 census. In the 2005 census, data were not collected on research.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2002 and 2009.

TABLE 12
Staff size of publicly funded forensic crime labs, by type of jurisdiction, 2009

Number of full-time employees	All labs	State	County	Municipal	Federal
All labs	100%	100%	100%	100%	100%
Fewer than 10	30%	30%	30%	38%	15%
10 to 24	34	38	29	36	18
25 to 49	17	16	22	7	35
50 to 99	13	10	16	11	21
100 or more	6	5	2	8	12
Mean	32	28	28	34	60
Median	17	16	18	15	35

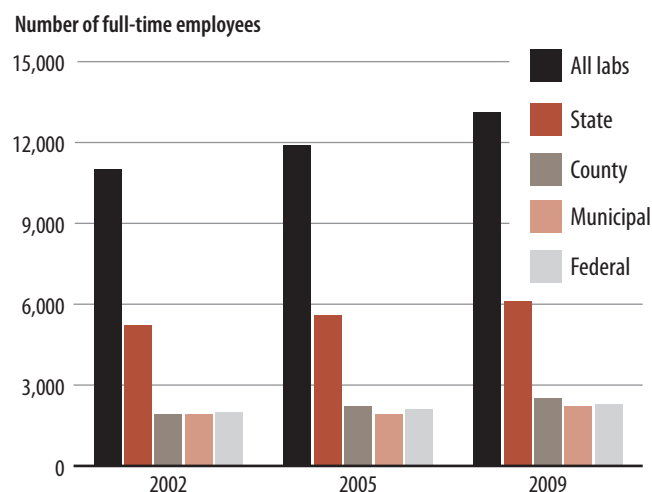
Note: Employee data were reported by 99% of the 397 labs that responded to the census. Detail does not sum to total due to rounding.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2009.

Federal labs accounted for less than 10% of all crime labs operating during 2009. On average, federal labs had larger staff sizes compared to those serving state, county, or municipal jurisdictions. In 2009, the mean staff size was 60 for federal labs, 28 for both state and county labs, and 34 for municipal labs. Overall, 32% of federal labs had 50 or more employees in 2009, compared to 15% of state labs, 18% of county labs, and 19% of municipal labs.

The nation's publicly funded crime labs employed an estimated 13,100 full-time personnel in 2009, compared to 11,900 in 2005 and 11,000 in 2002 (figure 5). During each of these three years, about half of crime lab employees worked in state-operated facilities.

FIGURE 5
Nationally estimated number of full-time employees in publicly funded forensic crime labs, by type of jurisdiction, 2002, 2005, and 2009



Note: National estimates are based on imputations for labs that did not report employee data. See *Methodology* for imputation procedures. Appendix table 3 provides employee totals.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2002, 2005, and 2009.

In 2009, more than half (60%) of crime lab employees were analysts or examiners who prepared and analyzed evidence and reported on their conclusions (table 13). The majority of analysts were intermediate or senior level employees. Managers (directors and supervisors) accounted for 14% of all crime lab employees in the United States. Nine percent of all crime lab employees were clerical or administrative staff who performed functions related to the operation of the laboratory, such as quality assurance or information technology, but did not analyze forensic evidence. An additional 9% of personnel were lab technicians or technical support staff who assisted in evidence examination. While crime scene investigations were often handled by agencies outside of the crime lab (such as specialized police units), 6% of the nation's crime lab employees worked as crime scene technicians who were responsible for collecting evidence in the field and documenting the crime scene.

TABLE 13
Positions of employees in publicly funded forensic crime labs, by type of jurisdiction, 2009

Type of position	Total	State	County	Municipal	Federal
All employees	100%	100%	100%	100%	100%
Analyst/examiner	60%	64%	56%	54%	57%
Entry level	13	15	12	13	12
Intermediate/senior level	46	50	44	40	45
Technical support	9%	10%	6%	6%	11%
Manager	14%	15%	15%	11%	13%
Clerical support	9%	9%	9%	6%	14%
Crime scene technician	6%	1%	10%	17%	2%
Other ^a	3%	1%	4%	6%	2%
Estimated national total ^b	13,100	6,100	2,500	2,200	2,300

Note: Percentages are based on labs reporting employee data. Detail does not sum to total due to rounding.

^aIncludes other positions in labs, such as building maintenance, photographers, and polygraph examiners.

^bNational estimates were adjusted to account for missing data. See *Methodology* for imputation procedures.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2009.

Annual budget for publicly funded crime labs increased between 2002 and 2009

The estimated budget for all 411 crime labs in 2009 was about \$1.6 billion—an increase from the \$1.0 billion for the 351 labs operating in 2002 (table 14). Labs serving state jurisdictions accounted for nearly half (\$680 million) of the overall budget in 2009. The budget for all federal labs in 2009 was about \$348 million, more than half of which was reported by the FBI Laboratory. Overall, the mean annual budget was \$3.9 million (not in table). Federal labs had the highest mean budget at about \$9.5 million, while the mean budgets was \$3.7 million for county jurisdictions and \$3.6 million for municipal jurisdictions. State labs had a mean budget of about \$3.2 million. The overall median budget for state (\$1.6 million), county (\$1.9 million), municipal (\$1.4 million), and federal labs (\$1.1 million) was about \$1.6 million.

Personnel costs, including salaries and fringe benefits, accounted for 73% of the \$1.4 billion expenditures reported by publicly funded crime labs in 2009 (not in table). Costs for supplies (13%) and equipment (9%) accounted for more than 20% of expenditures. Thirty-one percent of publicly funded crime labs charged fees for forensic services in 2009. Labs serving state (41%) and county (35%) jurisdictions were more likely than those serving municipal (16%) and federal (3%) jurisdictions to receive fees for services. About 7 in 10 (69%) publicly funded crime labs received funding from grants in 2009.

TABLE 14
Nationally estimated annual operating budget (in millions) for the nation’s publicly funded forensic crime laboratories, by type of jurisdiction, 2002, 2005, and 2009

Type of jurisdiction	2002	2005	2009
All labs	1,036	1,155*	1,562
State	454	529	680
County	172	236	314
Municipal	112	130	219
Federal	299	...	348
Number of labs operating	351	389	411

Note: National estimates are based on imputations for labs that did not report budget data. See *Methodology* for imputation procedures. Appendix table 4 provides budget totals based on labs that reported this information in the census.

*Includes federal labs, not shown separately.

... Not presented due to the low response rate among federal labs in 2005.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2002, 2005, and 2009.

Methodology

The Census of Publicly Funded Forensic Crime Laboratories (CPFFCL) included all state, county, municipal, and federal crime labs that met the project definition of a crime laboratory (See *Definitions*). Some of these laboratories were part of a multi-lab system. The census attempted to collect information from each lab in the system. Police identification units, although sometimes responsible for fingerprint analysis, and privately operated facilities were not included in the census.

Data collection

In November 2010, Bureau of Justice Statistics (BJS) fielded a third CPFFCL to collect detailed information on the workload and operations of the nation's crime labs during 2009 and to examine changes since the previous censuses. The Urban Institute administered the data collection on behalf of BJS. The census population frame and questionnaire were developed by BJS and the Urban Institute with input from the American Society of Crime Laboratory Directors (ASCLD), as well as researchers and practitioners in the forensic science field. The data collection instrument was pretested on a small sample of labs representing facilities of different sizes and governmental affiliations.

The Urban Institute conducted the census through a mailed questionnaire and a web-based data collection interface. Follow-up phone calls and emails were made to nonrespondents and labs that submitted incomplete questionnaires. In addition, ASCLD encouraged labs to participate through announcements in its newsletter. In May 2011, a shorter form with basic census items was sent to 12 nonresponding labs in a final effort to improve response rates. Overall, 97% (or 397) of the 411 eligible labs submitted responses to the 2009 census, including 375 through the automated web system and 22 by mail, fax, or email (table 15).

This report summarizes findings from the 2009 census and provides comparative analysis with data collected in the 2002 and 2005 censuses. Because of the low response rate in 2005 among federal laboratories, 2005 summary statistics are not presented in many tables for those labs.

Imputation procedures for national estimates

To generate national estimates for staff, budgets, and workload totals in 2009, several imputation methods were used to account for missing data. For the 2009 census, 392 laboratories reported a combined staff of about 12,500 full-time employees in 2009 (appendix table 3). For the other 19 labs, imputations were made using employee data reported in the previous censuses or the median staff size in 2009 among labs of similar jurisdiction, depending on the availability of data.

Budget data were provided by 383 of the 411 laboratories in the 2009 census, 96 of which provided combined budget data for the entire multi-lab system. Those totals were distributed proportionately across each laboratory in the system based on the staff size. For the 28 labs that were missing 2009 budget information, imputations were based on either (1) budget data from the previous censuses or, if that information was unavailable, (2) their staff size in 2009 was multiplied by the median ratio of budgets per employee for labs of similar jurisdiction and size.

National estimates for 2002 and 2005 budget and staff totals were generated using similar imputation methods. See *Census of Publicly Funded Forensic Crime Laboratories, 2005*, BJS website, NCJ 222181, June 2008, for more information.

Labs that did not provide workload data received imputed values within each category of forensic service they perform in 2009. Imputations for requests received and completed were based on either information provided in the previous censuses or on the median requests among labs of similar size and jurisdiction. Imputations for backlogs were made using either the number of pending requests in 2009, the number of backlogged requests from the previous censuses, or the median backlog among labs of similar size and jurisdiction.

National estimates could not be generated for the number of requests received, completed, and backlogged in 2002 and 2005. Among the 351 publicly funded crime labs operating in 2002, 45 did not respond to the census that year. Of the 389 labs operating in 2005, 38 labs did not respond to the 2005 census. Without knowing the type of work performed by these labs, national-level totals could not be reliably estimated for all labs performing a specific forensic service during those years.

TABLE 15
Response rates for the Census of Publicly Funded Forensic Crime Laboratories, 2002, 2005, and 2009

Type of jurisdiction	2002			2005			2009		
	Labs in census	Responding labs	Response rate	Labs in census	Responding labs	Response rate	Labs in census	Responding labs	Response rate
All labs	351	306	87%	389	351	90%	411	397	97%
State	198	171	86%	210	207	99%	215	211	97%
County	67	62	93	84	79	94	90	88	98
Municipal	53	48	91	62	55	89	66	63	95
Federal	33	25	76	33	10	30	38	35	92

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2002, 2005, and 2009.

Definitions

Analyst—an investigator who inspects, analyzes, and interprets physical evidence, writes reports, and delivers testimony in court about the evidence.

Backlogged request—a request that has been submitted to a specialized area of the crime laboratory and is not completed within 30 days.

Controlled substance analysis—the identification of drugs and other substances whose possession or use, in either legal or illicit dosages, is restricted by the government.

Crime scene analysis—the identification, documentation, collection, and interpretation of physical evidence at a location external to a laboratory facility and where a suspected crime has occurred.

Digital evidence—the investigation of various types of analog or multi-media evidence, such as the recovery, extraction, and analysis of computer files, film, tape, and magnetic and optical media.

Examiner—See analyst.

Firearms analysis—the examination and comparison of evidence resulting from the discharge or use of firearms.

Forensic biology—includes the discipline areas of biology screening and DNA analysis. Biology screening is the examination of evidence for the presence of stains from blood, saliva and other physiological fluids. DNA analysis is the process used to develop a DNA profile from (1) arrestees or convicted offenders as required by federal and state laws or (2) casework samples collected from crime scenes, victims, or suspects.

Impressions analysis—the identification, documentation, collection, and interpretation of two- and three-dimensional impressions and imprints found at crime scenes (including footwear and tire tread).

Latent prints analysis—the development or comparison of finger or palm print impressions.

Municipal—cities, towns, villages, and boroughs.

Publicly funded forensic crime laboratory—a scientific laboratory that (1) is solely funded by government or whose parent organization is a government agency and (2) employs at least one full-time natural scientist who examines physical evidence in criminal matters and provides reports and opinion testimony with respect to such physical evidence in courts of law. This definition does not include operations that engage exclusively in fingerprint recovery, development, and examination; crime scene investigation; computer crime inquiries; and photography.

Questioned documents analysis—the examination of printed, typed, or written material for the purpose of identifying the source or determining alterations, or other means of gaining information about the item or the circumstances surrounding its production.

Request—the submission of physical evidence from a case to a single specialized area of a crime laboratory. Multiple submissions of new evidence from the same case to one or more sections of the laboratory would count as separate requests.

Toolmark analysis—the comparison of marks made by various tools.

Toxicology—the analysis of biological samples for the presence of drugs and other potentially toxic materials. Includes antemortem, postmortem, and blood alcohol content (BAC).

Trace evidence—any analytical procedure using microscopy or chemical and instrumental techniques. Includes the examination of gunshot residue, explosives, hair, fibers, and fire debris.

Other BJS reports related to forensics available on the BJS website at <http://www.bjs.gov>

Survey of DNA Crime Laboratories, 1998, NCJ 179104, February 2000

Survey of DNA Crime Laboratories, 2001, NCJ 191191, January 2002

50 Largest Crime Labs, 2002, NCJ 205988, September 2004

Census of Publicly Funded Forensic Crime Laboratories, 2002, NCJ 207205, February 2005

Medical Examiners and Coroners' Offices, 2004, NCJ 216756, June 2007

Unidentified Human Remains in the United States, 1980-2004, NCJ 219533, November 2007

Census of Publicly Funded Forensic Crime Laboratories, 2005, NCJ 222181, July 2008

APPENDIX TABLE 1**Number of reported requests for services backlogged in publicly funded forensic crime labs, by type of request, yearend 2008–09**

Type of request	Yearend 2008	Yearend 2009
All requests	1,131,100	1,153,700
Forensic biology*	872,300	893,700
Convicted offender/arrestee samples	517,000	494,400
Casework	355,300	399,300
Controlled substances	120,000	121,800
Latent prints	48,400	47,100
Firearms/toolmarks	41,700	45,700
Toxicology	27,100	23,900
Trace evidence	13,200	12,200
Impressions	5,300	5,600
Digital evidence	1,200	1,200
Questioned documents	800	1,000
Other forensic requests	1,100	1,500

Note: Based on the 363 labs that reported backlog data in the census. National estimates provided in table 4. A request is classified as backlogged if it has been submitted to a crime lab, but has not yet been examined and reported to the submitting agency within 30 days. Totals exclude requests outsourced to other labs. Numbers are rounded to the nearest hundred.

*Includes requests for DNA analysis and biology screening.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2009.

APPENDIX TABLE 2**Number of reported requests for services received and completed by publicly funded forensic crime labs, by type of request, 2009**

Type of request	Received	Completed
All requests	3,756,000	3,632,000
Forensic biology*	1,359,000	1,287,000
Convicted offender/arrestee samples	1,028,000	1,002,000
Casework	331,000	285,000
Controlled substances	1,135,000	1,123,000
Toxicology	573,000	552,000
Latent prints	245,000	252,000
Crime scene	177,000	177,000
Firearms/toolmarks	129,000	114,000
Trace evidence	52,000	42,000
Digital evidence	26,000	27,000
Impressions	10,000	10,000
Questioned documents	7,000	7,000
Other forensic requests	42,000	42,000

Note: Based on the 374 labs that reported data on requests received and completed in the census. National estimates provided in table 5. The number of requests completed in 2009 exceeded the number of requests received that year for certain disciplines because the completed requests included ones received in 2008. Totals exclude requests outsourced to other labs. Numbers are rounded to the nearest thousand.

*Includes requests for DNA analysis and biology screening.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2009.

APPENDIX TABLE 3**Number of full-time employees in publicly funded crime forensic labs, by type of jurisdiction, 2002, 2005, and 2009**

Type of jurisdiction	2002	2005	2009
Full-time employees reported^a			
All labs	9,000	9,400	12,500
State	4,300	4,800	5,900
County	1,600	1,700	2,400
Municipal	1,600	1,600	2,100
Federal	1,400	1,200	2,000
Number of reporting labs	278	296	392
National estimate of full-time employees^b			
All labs	11,000	11,900	13,100
State	5,200	5,600	6,100
County	1,900	2,200	2,500
Municipal	1,900	1,900	2,200
Federal	2,000	2,100	2,300
Number of labs operating	351	389	411

Note: Numbers are rounded to nearest hundred.

^aNumbers based on labs that reported employee data in the census.

^bEstimates based on imputations for labs that did not report employee data.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2002, 2005, and 2009.

APPENDIX TABLE 4**Total annual operating budget (in millions) reported by publicly funded forensic crime labs, by type of jurisdiction, 2002, 2005, and 2009**

Type of jurisdiction	2002	2005	2009
All labs	835	821*	1,490
State	345	406	660
County	164	173	300
Municipal	83	94	207
Federal	243	...	323
Number of reporting labs	267	254	383

Note: Based on labs that reported budget data in the census. National estimates provided in table 14.

*Includes federal labs, not shown separately.

... Not presented due to the low response rate among federal labs in 2005.

Source: Bureau of Justice Statistics, Census of Publicly Funded Forensic Crime Laboratories, 2002, 2005, and 2009.



The Bureau of Justice Statistics is the statistical agency of the U.S. Department of Justice. James P. Lynch is the director.

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